

**REMARKS**

This application is a continuation of United States Patent Application Ser. No. 09/926,768, now US Patent 6,727,696. Claims 1-72 were originally filed in the parent application. In a preliminary amendment filed with the present application, claims 1-72 were canceled and new claim 73 was added. In a second preliminary amendment filed on November 5, 2004, new claims 74-99 were added. A Notice of Allowance was received by the Applicant, but prior to the payment of the issue fee, the Notice of Allowance was withdrawn by the Patent and Trademark Office.

Claims 73-99 are pending in the applications. Claims 73, 74 and 88 are independent claims. Reconsideration of the application as amended is respectfully requested. The Examiner's rejections are addressed in substantially the same order as in the referenced office action.

**OBVIOUSNESS TYPE DOUBLE PATENTING REJECTION**

Claims 73-79 stand rejected under the judicially created doctrine of obviousness type double patenting over claims 1-98 of US Patent 6,727,696. A terminal disclaimer is being filed with the present document over the term of US Patent 6,727,696

**REJECTIONS UNDER 35 USC § 102**

Claim 73 stands rejected under 35 USC § 102(b) over *Leggett* (US6,088,294).

Claim 73 is an independent claim.

10/828812

The Examiner is correct in noting that *Leggett* uses a control system 400 that includes an expert system for generating instructions for steering the drilling apparatus. The Applicant respectfully disagrees with the Examiner's assertion that "to be able to control the operation of the apparatus, the expert system would have to first determine from sensors the lithology of the formation."

The only mention of the word "lithology" in *Leggett* is in col. 12 lines 19-22, and discloses that different lithologies may have differences in acoustic wave propagation. The teachings of *Leggett* are directed towards deterministic processing of reflected acoustic signals for determining the locations of bed boundaries. Attention of the Examiner is drawn to the following from *Leggett* col. 4 lines 37-47

The acoustic system of the present invention determines the actual formation velocities downhole during drilling of the wellbore and then utilizes such formation velocities to determine the bed boundaries around the downhole subassembly. The drill bit location is computed downhole or is provided to the downhole subassembly from surface measurements. The bed boundary information is utilized to geosteer the drill string so as to maintain the borehole at a desired place within the formation. The acoustic velocity and bed boundary information is utilized to correct or update seismic maps and to correlate measurements from other MWD measurements.

It is further noted at col. 12 lines 35 -50 that:

The processing techniques are substantially similar to the well known seismic signals processing techniques, particularly the single well seismic techniques. Such techniques include making preliminary corrections (static and dynamic).

building stacked data sets, convolution and time-varying Weiner methods and other shaping filtering techniques and seismic filtering techniques, such as causal feedforward filtering, causal feedback filtering, minimum delay, and least square wavelet filtering, etc. The system preferably utilizes noise cancellation and sensitive echo detection methods for improving the quality of the acoustic signals. Such methods are typically based on known signal processing techniques, such as the complex transfer function calculation, spectral and Cepstrum analysis, Hilbert transform, etc.

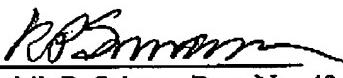
There is no disclosure or suggestion of the use of an Expert system for determination of a bed boundary location. In any case, a bed boundary is not synonymous with lithology.

In order to sustain a rejection under 35 USC § 102, a single prior art reference must disclose each and every limitation of the claim arranged as in the claim. This is clearly lacking in the present case. Accordingly, Applicant respectfully submits that claim 73 is patentable under 35 USC § 102 over *Leggett*.

The Commissioner is hereby authorized to charge fees due for this response and any deficiency, and credit any surplus to Deposit Account 02-0429 (414-26579-USC)

Respectfully submitted

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